REMARKS/ARGUMENTS

Applicants have carefully reviewed the Office Action of March 25, 2005. Reconsideration of the Examiner's rejection of the claims is respectfully requested. A total of 11 claims remain in the case, i.e. claims 1, 2, 18, 20-23, 25-26 and new claim 48. Independent claim 1 is amended to more clearly define the patentable distinctions of the invention over the cited art, i.e. that the polyolefin wax is polyethylene wax with a particle size ranging from 6 to 140 microns and an average molecular weight ranging from 650 to 30,000 and that the coating composition is essentially comprised of components a), b), and c) of original claim 7.

Independent claim 1 is amended to delete components d) and e). Applicants wish to note that the deleted subject matter of claim 1 is being deleted without prejudice in that components d) and e) may be included in one or more divisional cases that may be filed containing the withdrawn claims in view of the restriction requirement on this case.

Claims 7, 19, 24, 27 and 28 are canceled without prejudice. Claim 18 is amended for proper dependency on claim 2 since claim 3 is withdrawn. Claim 29 is amended to more clearly define that the particles are coated with the coating composition of the invention. The remaining claims 3-6, 8-17, and 30-47 are withdrawn from the case. New claim 48 recites that the polyethylene wax has a particle size ranging from 6 to 60 microns and an average molecular weight of 1,000. Claims 21-23, and 25-26 remain as originally filed.

Election/Restriction

Applicants made a provisional election with traverse to prosecute the invention of Group I and the species of the components of the coating composition wherein the coating composition consists of component a), b), and c), which are claims 1, 2, 7, and 18-29. Applicants confirm this election of these claims 1, 2, 7, 18-29 with traverse and without prejudice of Applicants' right to file divisional application(s)on claims 3-6, 8-17 and 30-47, which are withdrawn from further consideration by the examiner as being drawn to non-elected inventions, and on components d) and e) of original claim 1.

It would appear that a meaningful search performed if directed toward any one of the embodiments of Groups II, III, IV, and V and species claims 3-6 and 8-17 would, of necessity, uncover art relevant to the other embodiments. Reconsideration of the restriction requirement and withdrawal of the same are respectfully requested.

The inventorship of the elected claims 1, 2, 7 and 18-29 remain the same as originally submitted.

Claim 7 is the species claim which the inventors have elected for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic. Applicants note that upon the allowance of a generic claim, Applicants will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, Applicants note that they must indicate which are readable upon the elected species. Applicants have extensively amended

claim 1 such that only the species of claim 7 is reflected in this amended claim 1.

Priority/Specification

The Examiner states that Applicants have not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) in that the application must contain a specific reference to the prior application in the first sentence of the specification.

The Examiner called Applicants on May 25, 2005, in response to Applicants' voice mail message to the Examiner, and stated that Applicants only needed to amend the specification since priority was claimed in the declaration submitted by the inventors and that the claim for priority is indicated on the official filing receipt. Accordingly, the specification is amended herein to include a statement of priority.

Claim Rejections under 35 U.S.C. 112

Claims 1, 2, 7, and 18-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Claim 1 is incomplete for omitting essential structural cooperative relationships of elements. Claim 1 is amended to specifically state that the thermoplastic resin particles are coated with a coating composition.

In addition, Claim 1 is said to be indefinite in view of the term "higher fatty acids" which is not defined by the claim. The specification does not provide a standard for ascertaining the requisite degree, and one of

ordinary skill in the art would not be reasonably appraised of the scope of the invention. Claim 1 is also amended to specifically state that the metal salt of higher fatty acids is selected from the group consisting of zinc, magnesium, calcium, and aluminum salt of stearic, lauric and myristic acid.

In view of the amendments to claim 1, Applicants request that the rejection of the claims on this basis be withdrawn.

Claim 29 is said to be indefinite in that it is unclear as to the distinction between the claimed "thermoplastic resin particles" and the thermoplastic resin particles recited on line 3 of claim 29. Accordingly, claim 29 is amended to delete "coating composition covers said thermoplastic resin" and to insert after "particles", the phrase --are covered with said coating composition--.

In view of the amendments to claims 1 and 29, Applicants request that the rejection of the claims on this basis be withdrawn.

Claim Rejections Under 35 U.S.C. 102(b) and (e)

Claims 1, 2, and 19-29 are rejected under 35 U.S.C. 102 (b) as being anticipated by Ikeda et al. (USPN 4,698,367), Sonnenberg et al. (USPN 4,785,022), Hurley et al. (USPN 5,919,530) or Sakoda et al. (USPN 6,277,491), and under 35 U.S.C. 102 (e) as being anticipated by Imai et al. (JP 2002338725).

Each of Ikeda et al. (col 2, lines 59-63 and col. 9, lines 41-45), Sonnenberg et al. (Example 1, col. 3, lines 50-58), Hurley et al. (col. 4, lines 40-63 and col. 5 line 40 to col. 6, line 33), Sakoda et al. (Example 1)

and Takamusa et al. (abstract) teach expandable thermoplastic polystyrene particles coated with a composition comprising at least one of Applicants' claimed components in the claimed amounts.

The Claimed Invention

The claimed invention relates to a coating composition for thermoplastic resin particles, such as expandable polystyrene particles (ESP). Claim 1 as amended recites thermoplastic resin particles coated with a coating composition comprised of a liquid part and a solid part wherein the liquid part comprises a) polyethylene glycol having an average molecular weight from 200 to 800; and the solid part comprises b) a polyolefin wax, and c) a metal salt of higher fatty acids selected from the group consisting of zinc, magnesium, calcium, and aluminum slat of stearic, lauric and myristic acid. The polyolefin wax of component b) is polyethylene wax having a particle size of about 6 microns to about 140 microns and an average molecular weight of about 650 to about 30,000.

An important patentable distinction of amended claim 1 is that the wax is polyethylene wax with a particle size ranging from about 6 microns to about 140 microns with an average molecular weight of 650 to about 30,000. Support for these features appears on page 16 of the specification and in the Examples. New claim 48 recites that the polyethylene wax has a particle size of about 6 to 60 microns and an average molecular weight of 1,000. Support for these features appear on page 17 of the specification and the Examples.

The coating composition of the claimed invention not only improves the resistance to leakage of any article that may be formed from the thermoplastic resin particles, but the type of wax, which is polyethylene wax having the claimed particle size and average molecular weight, also improves the mechanical properties of any article produced from the coated particles. That is, the overall strength (ATF) and/or the rim strength of any article made from the coated thermoplastic resin particles of the invention are improved. These improvements are particularly important if the article is a container for holding liquids and/or oily foods as discussed in the specification of the application.

The Cited References

Ikeda et al., U.S. Patent No. 4,698,367 (not 4,698,368 as indicated in the Office Action) teaches the use of a copolymer composed of a fluorinated vinyl polymer part and a hydrophilic vinyl polymer part and a metal salt of higher fatty acid that covers or is included in the surface or surface layer of the resin particle. (Col. 9, lines 10-20) If the copolymer is used in powder form, it is recommended that the resin particles be covered in advance with liquid polyethylene glycol as a spreading agent and then to cover the resins with the powder copolymer. (Col. 9, lines 24-28) The foamed articles molded from the expandable thermoplastic resin particles prevent markedly oil and water exudation, and fusing together of the resin particles in molding is not retarded. (Col. 9, lines 46-50)

This reference does not teach a coating composition as claimed in amended claim 1, which is comprised of

three components, i.e. a) a liquid polyethylene glycol, b) a polyethylene wax having a particle size ranging from 6 to 140 microns and an average molecular weight of 650 to 30,000, and as recited in new claim 48, a particle size of 6 to 60 microns and an average molecular weight of 1,000, and c) a metal salt of higher fatty acid, and which coating composition improves both the resistance to leakage and the overall strength and/or the rim strength of the molded article produced from the coated thermoplastic particles. In Ikeda, et al., Column 1, lines 49-53 teach that it is known to use a wax on the resin particles in order to prevent coagulation but that this surface-covering agent has a tendency to retard fusing together of the resin particles in molding. Thus, this reference teaches away from the use of wax on resin particles.

Sonnenberg et al., U.S. Patent No. 4,785,022 is addressed to the use of rubbery copolymers to decrease coffee leakage in foam cups. The surface of the beads is coated with a rubbery copolymer. The rubber useful in the invention is selected from polybutene, polyisobutylene, and polyisobutylene-butene copolymers. Column 3, lines 50-58 teach that polyethylene wax is used in the impregnation formulation for impregnating the beads with a blowing agent and therefore is not part of the coating composition for the particles.

Here again, this reference does not teach a coating composition as claimed in amended claim 1, which is comprised of three components, i.e. a) a liquid polyethylene glycol, b) a polyethylene wax having a particle size ranging from 6 to 140 microns and an average molecular weight of 650 to 30,000, and as recited

in new claim 48, a particle size of 6 to 60 microns and an average molecular weight of 1,000, and c) a metal salt of higher fatty acid, and which coating composition improves both the resistance to leakage and the overall strength and/or the rim strength of the molded article produced from the coated thermoplastic particles.

Hurley, et al., U.S. Patent No. 5,919,530 discloses a coating composition for producing colored thermoplastic resins that are useful for forming articles. The resins may be compounded and manufactured as pellets in an extrusion process. The thermoplastic resins have a thermoplastic resin body coated with a layer of a lower melting thermoplastic coating composition comprised of a polymeric component and an additive, preferably a colorant or pigment. As taught in column 6, lines 6 to 36, the polymeric component may be a polyethylene wax with a molecular weight of at least 2000 and preferably below 12,000; or a fatty acid, including stearic acid, etc. or a fatty acid soap, such as zinc stearate, or a polyether, including polyethylene glycol.

Here again, this reference does not teach a coating composition as claimed in amended claim 1, which is essentially comprised of at least three components, i.e. a) a liquid polyethylene glycol, b) a polyethylene wax having a particle size ranging from 6 to 140 microns and an average molecular weight of 650 to 30,000 and as recited in new claim 48, a particle size of 6 to 60 microns and an average molecular weight of 1,000, and c) a metal salt of higher fatty acid, and which coating composition improves both the resistance to leakage and the overall strength and/or the rim strength of the

molded article produced from the coated thermoplastic particles.

The coating composition of Hurley, et al. is used to color pellets, which, in turn, are used to produce colored articles in an extrusion process and not in a molding process as are the particles of the invention. The polymeric component, which may be a wax, a fatty acid, or polyethylene glycol (column 6, lines 1-36), is used with a colorant or pigment. The particle size of the polyethylene wax generally is of little importance in the coating composition of Hurley, et al. Additionally the pellets are not expandable in that they do not contain a blowing agent.

Sakoda, et al., U.S. Patent No. 6,277,491 teaches expandable thermoplastic resin beads whose surface is coated with a fluorine-containing block copolymer comprising a fluorine-containing vinyl-type polymer segment derived from a fluorine-containing vinyl-type monomer and a lipophilic vinyl-type polymer segment derived from a lipophilic vinyl-type monomer. Example 1 illustrates that the expandable beads were mixed with the solution of fluorine-containing block copolymer, polyethylene glycol, and zinc stearate to produce expandable beads whose surface was coated with the copolymer.

Column 12, lines 1 to 11 teach that the expanded articles, which are obtained by molding the expandable thermoplastic resin beads, exhibit the properties of preventing the permeation of oils and fats and aqueous surfactant solutions and of inhibiting fusion at the time of molding the resin beads. However, this reference does not teach a coating composition as claimed in amended

claim 1, which is comprised of three components, i.e. a) a liquid polyethylene glycol, b) a polyethylene wax having a particle size ranging from 6 to 140 microns and an average molecular weight of 650 to 30,000 and as recited in new claim 48, a particle size of 6 to 60 microns and an average molecular weight of 1,000, and c) a metal salt of higher fatty acid, and which coating composition improves both the resistance to leakage and the overall strength and/or the rim strength of the molded article produced from the coated thermoplastic particles.

Takamasa, et al. JP 2002-338725 (Abstract) teaches an expandable polystyrenic resin article covered with zinc stearate in order to suppress permeation of contents contained in an expansion-molded article.

Here again, this reference does not teach a coating composition as claimed in amended claim 1, which is comprised of three components, i.e. a) a liquid polyethylene glycol, b) a polyethylene wax having a particle size ranging from 6 to 140 microns and an average molecular weight of 650 to 30,000 and as recited in new claim 48, a particle size of 6 to 60 microns and an average molecular weight of 1,000, and c) a metal salt of higher fatty acid, and which coating composition improves both the resistance to leakage and the overall strength and/or the rim strength of the molded article which is produced from the coated thermoplastic particles.

In view of the above comments with regard to the references, Applicants respectfully request that the rejection of the claims under 35 U.S.C. 102 (b) or (e) be withdrawn.

Claim Rejections under 35 U.S.C. 103 (a)

Claims 7 and 18 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Ikeda et al. or Hurley et al. The arguments above with regard to the patentability of the claims in view of the rejection under 35 U.S.C. 102 (b and e) applies here with equal force. Applicants have already addressed the reasons the Examiner gives for the rejection of claims 7 and 18 in view of Ikeda, et al. i.e., column 1, lines 45-52 and column 9, lines 24-29.

Claim 7 has been canceled without prejudice. The essence of original claim 7 appears in amended claim 1. Applicants submit that it would not be obvious to one of ordinary skill in the art at the time the invention was made, to arrive at Applicants' invention. In particular, one skilled in the art was not aware of the importance of using three components, i.e. liquid polyethylene glycol, polyethylene wax, and a metal of higher fatty acid, e.g. zinc stearate, wherein the polyethylene wax has the characteristics (amended claim 1).

None of the cited references, taken singly or in combination, suggest the claimed invention of claim 1 as amended, whereby a coating composition essentially comprises a liquid polyethylene glycol, a polyethylene wax, and a metal of higher fatty acid, and wherein the polyethylene wax has a particle size ranging from 6 to 140 microns and an average molecular weight of 650 to 30,000. Furthermore, there is no suggestion in any of the references for any such combination.

In this context it is important to note the admonition provided by the Court of Customs and Patent Appeals decision in In re Imperato, 179 USPQ 730 wherein

the Board of Appeals affirmation of an Examiner's rejection under Section 103 based on the combination of references was overturned. In so doing, the Board stated on page 732:

> With regard to the principal rejection, we agree that combining the teaching of Schaefer with that of Johnson or Amberg would give the beneficial results observed by appellant. However, the mere fact that those disclosures can be combined does not make the combination obvious unless the art also contains something to suggest the desirability of the combination. We find no such suggestion in these references.

Guidance provided by this case would appear to be applicable in the present situation wherein any reasonable interpretation of the individual references would lead one skilled in the art in a direction away from Applicants' invention as there is nothing to teach or suggest the combination.

New Claim 48

The arguments presented above with regard to the patentability of the claims, particularly of amended claim 1, apply with equal force to new claim 48.

Additional Prior Art

Applicants note that the following prior art are made of record: US 5194356, US 5798407 or US 6740697. Applicants submit that these references are less pertinent than those cited in rejection of the claims.

Summary and Conclusion

The claimed invention, particularly that of amended, independent claim 1 is not taught, disclosed, or

suggested in the cited references. Dependent claims 2, 18, 20-23, 25-26, and new claim 48 are patentable on their own merits in addition to being directly or indirectly dependent on a patentable claim 1.

Applicants, for the first time, have found that the three components of the coating composition of claim 1 and the physical characteristics of the polyethylene wax are important for the suppression of permeation of liquids/foods and for the improvement of the overall strength and/or rim strength of molded articles, e.g. containers, e.g. cups made from the particles coated with the coating composition of the claimed invention.

This is a no "fee" amendment other than the fee due for the three-month extension of time.

The inventorship remains as originally indicated.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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